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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/698,115 10/30/00 HORIUCHI

A 865.4345 DI

005514 MM91/1016
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EXAMINER

THOMPSON T

ART UNIT

PAPER NUMBER

2873

DATE MAILED:

10/16/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/698,115

Applicant(s)

HORIUCHI, AKIHISA

Examiner

Timothy J Thompson

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-20,23-26 and 28-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12,14-18,20,23,24,28-31,33 and 34 is/are rejected.
- 7) ☒ Claim(s) 13,19,25,26 and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Allowable Subject Matter

The indicated allowability of claims 12-20 is withdrawn in view of the newly discovered reference(s) to Tochigi et al.(U.S. Patent No. 5,963,378) and Uzawa (U.S. Patent No. 6,016,228). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12 and 14-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tochigi et al.(U.S. Patent No. 5,963,378) in view of Uzawa (U.S. Patent No. 6,016,228).

Regarding claim 12, Tochigi et al. discloses a first lens unit of positive refractive power(fig 1, 1), a second lens unit of negative refractive power(fig 1, 2), a third lens unit of positive refractive power(fig 1, 3) and a fourth lens unit of positive refractive power(fig 1, 4), zooming from a wide-angle end to a telephoto

end being effected by moving said second lens unit toward the image side(fig 1), and shifting of an image plane due to zooming being compensated for by moving said fourth lens unit(col 3, lines 62-64), wherein said second lens unit consists of four single lenses(example 1, r6-r13), including three negative lenses(example 1, r6-r9 and r12-r13), and one positive lens(example 1, r10-r11) and the third lens unit has at least one positive lens(example 1, r17-r19). Tochigi et al. does not disclose the at least one of the four single lenses in the second lens group is aspherical. However, Uzawa the at least one of the four single lenses in the second lens group is aspherical(example 1, seventh surface). It would have been obvious to one skilled in the art to place an aspherical surface on one of the lenses in the second lens group, as shown by Uzawa, in the lens system of Tochigi et al., since as shown by Uzawa, placing an aspherical surface on one of the lenses of the second lens unit is commonly done so as to correct for aberrations.

Regarding claim 14, Tochigi et al. does not disclose that the aspherical lens is the third lens. However, Uzawa discloses the third lens(fig 1, r6-r7). It would have been obvious to one skilled in the art to place an aspherical surface on the third lens in the second lens group, as shown by Uzawa, in the lens system of Tochigi et al., since as shown by Uzawa, placing an aspherical surface on the third lens of the second lens unit is commonly done so as to correct for aberrations.

Regarding claim 15, Tochigi et al. discloses per equation 4 in col 5, and numerical example 1 which indicates that $F_w = 1$, that $.16 < |F_2/F_a| < 1.265$.

Regarding claim 16, Tochigi et al. discloses $v_n = 42.733$ and $v_p = 23$.

Regarding claim 17, Tochigi et al. discloses $N_n = 1.85$.

Regarding claim 18, Tochigi et al. discloses per equation 4 in col 5, and numerical example 1 which indicates that $R_{22} = 1.184$, that $.29 < |R_{22}/F_2| < 2.36$.

Regarding claim 20, Tochigi et al. discloses a zoom lens(col 1, lines 5-10).

Claims 23, 24, 28-31, 33, 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tochigi et al.(U.S. Patent No. 5,963,378) in view of Nakamura (U.S. Patent No. 5,963,378).

Regarding claim 23, Tochigi et al. discloses a first lens unit of positive refractive power(fig 1, 1), a second lens unit of negative refractive power(fig 1, 2), a third lens unit of positive refractive power(fig 1, 3) and a fourth lens unit of positive refractive power(fig 1, 4), zooming from a wide-angle end to a telephoto end being effected by moving said second lens unit toward the image side(fig 1), and shifting of an image plane due to zooming being compensated for by moving said fourth lens unit(col 3, lines 62-64), wherein said second lens unit consists of four single lenses(example 1, r6-r13) including three negative lenses(example 1, r6-r9 and r12-r13) and one positive lens(example 1, r10-r11) and the third lens unit has at least one positive lens(example 1, r17-r19). Tochigi et al. does not disclose the positive lens in the third lens unit has both surfaces of which are aspherical. However, Nakamura discloses the positive lens in the third lens unit

- has both surfaces of which are aspherical. It would have been obvious to one skilled in the art to place an aspherical surface of a positive lens in the third lens group as shown by Nakamura, in the lens system of Tochigi et al., since as shown by Nakamura, placing aspherical surfaces on both sides of a positive lens in the third lens group is commonly done so as to correct for aberrations.

Regarding claim 24, Tochigi et al. discloses per equation 4 in col 5, and numerical example 1 which indicates that $F_w = 1$, that $.16 < |F_2/F_a| < 1.265$.

Regarding claim 28, Tochigi et al. discloses $v_n = 42.733$ and $v_p = 23$.

Regarding claim 29, Tochigi et al. discloses $N_n = 1.85$.

Regarding claim 30, Tochigi et al. discloses the second lens unit in order from the object side a first negative lens having a concave surface of stronger optical power on the image side than on the object side(ex 1, r_6 - r_7), a second negative lens both surfaces of which are concave(ex 1, r_8 - r_9), a third positive lens having a convex surface of stronger optical power on the object side than on the image side(ex 1, r_{10} - r_{11}), and a third negative lens, both surfaces of which are concave(ex 1, r_{12} - r_{13}).

Regarding claim 31, Tochigi et al. discloses per equation 4 in col 5, and numerical example 1 which indicates that $R_{22} = 1.184$, that $.29 < |R_{22}/F_2| < 2.36$.

Regarding claim 33, Tochigi et al. discloses per equation 4 in col 5, and numerical example 1 which indicates that $|R_{26}/R_{27}| = .49$.

Regarding claim 34, Tochigi et al. discloses a zoom lens(col 1, lines 5-10).

Allowable Subject Matter

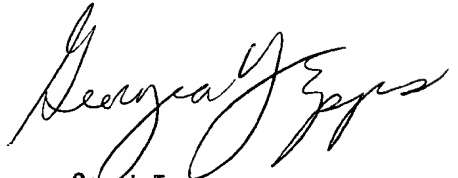
Claims 13, 19, 25, 26 and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. With the important features being the mathematical limitations or the specific shape of the lenses.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Thompson whose telephone number is (703) 305-0881. If the examiner can not be reached his supervisor, Georgia Epps, can be reached on (703) 308-4883.

T.J.T.

10/11/01


Georgia Epps
Supervisory Patent Examiner
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